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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/383,889	08/26/1999	DONALD F. CALDWELL	113518	7153

7590 09/08/2003

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EXAMINER

ROBINSON, GRETA LEE

ART UNIT	PAPER NUMBER
2177	

2177

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 14

Application Number: 09/383,889  
Filing Date: August 26, 1999 .  
Appellant(s): CALDWELL ET AL.

\_\_\_\_\_  
Benjamin S. Lee  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed July 23, 2003.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: The Examiner finds Applicant's arguments regarding issue (ii) in the brief persuasive. Claim 6 is patentable over the prior art rejection under 35 USC 103(a) citing Breternitz US Patent 6,216,213 in view of Houldings et al. Low Entropy Image Pyramids for Efficient Lossless Coding convincing; therefore this claim is allowed.

**(7) Grouping of Claims**

Appellant's brief includes a statement that claims 1-10 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

6,216,213 Breternitz Jr. et al. 4-2001  
Houlding et al., Low Entropy Image Pyramids for Efficient Lossless Coding, IEEE Transactions on Image Processing, vol. 4, issue 8 (Aug. 1995), pg. 1150-1153

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

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Claims 1-5 and 7-10 rejected under 35 U.S.C. 102(e) as being anticipated by Breternitz Jr. et al. US Patent 6,216,213 B1. This rejection is set forth in prior Office Action, Paper No. 6.

Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Breternitz Jr. et al. US Patent 6,216,213 B1 in view of Houldings et al. Low Entropy Image Pyramids for Efficient Lossless Coding. This rejection is set forth in prior Office Action, Paper No. 6.

**(11) Response to Argument**

**(Argument 1)** Independent claims 1 and 7 both recite the limitation of "transforming the data in accordance with a schema" wherein the "transformed data" is compressed in a subsequent limitation. As noted in the specification on page 5, lines 19-21, transformation "in accordance with a schema" requires partitioning and reordering the data in a manner that optimizes the compression of the input data. The Breternitz patent **does not disclose** "transforming the data in accordance with a schema" because it fails to disclose reordering or rearranging the data. Breternitz does not disclose partitioning and reordering the data in a manner that optimizes the compression of the input data.

**Response:** In response to Applicant's argument above, the Examiner respectfully disagrees the Breternitz patent teaches "transforming the data in accordance with a

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schema" and "compressing the transformed data". Note Applicant defines "schema" on page 5 of the specification lines 18-20 as follows:

*"The **schema 120** represents coded instructions for partitioning and reordering the data in a manner that optimizes the compression of the input data" [see page 5 lines 18-20].*

Independent claims 1 and 7, recite "transforming data in accordance with a schema" (note schema is equivalent to coded instructions), in Breternitz the **pre-compression activity** (note element 101, figure 1) and (401, figure 4) represents transforming the data in accordance with a schema. Pre-compression activity also includes such steps as compiling and linking of source code before the actual compression of the data. In Breternitz, like the present invention, the data is acted upon **before** compression to enhance the compression process. The schema, as defined in the present invention represents coded instructions for partitioning and reordering the data. Breternitz' pre-compression activity (101) allows **uncompressed code to be divided** or partitioned note elements 20, 30 and 40 figure 2; also see column 3 lines 5-8; col. 4 lines 26-33; also note col. 1 lines 13-32. The Examiner notes that the claims do not recite the limitation "reordering" and/or "rearranging the data". The Breternitz patent is concerned with improving the performance of compressing data such as reducing system size, limiting overhead and execution time of compressed programs see col. 1 lines 1-19, and col. 2 lines 10-13.

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**(Argument 2)** The Breternitz patent does not disclose partitioning and reordering the data "in a manner that optimizes the compression of the input data".

**Response:** The Examiner respectfully notes that Applicant's quoted argument is not a part of the claim limitation. However, the Breternitz patent is concerned with "improving compression of a stream of data" note col. 1 lines 1-10; col. 2 lines 1-14; col. 2 lines 40-45. In Breternitz the pre-compression activity transforms the data; the schema is the coded instruction that tells the system to act on the data, without instruction code pre-compression activity nor compression of data would not take place in Breternitz.

Breternitz teaches at "step 110, the uncompressed *code is divided* into uncompressed cache line blocks". Dividing the code [30, figure 2] represents partitioning and reordering the data, this is a part of the pre-compression activity. Breternitz states at "step 130, **efficiency is realized by compressing** the individual cache line blocks **to create compressed code 40**" col. 5 lines 22-23; therefore Breternitz is concerned with optimizing the compression through pre-compression activity which includes division or partitioning of the code.

**(Argument 3)** Also, there appears to be confusion as to what is being transformed at col. 3 lines 24-29. What is being "compressed" in the Breternitz patent are processor instructions in the cache line; and what is being transformed in the passage at col. 3 lines 24-29 are addresses for locating the processor instructions in the cache memory.

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Accordingly, the data to be compressed, namely the processor instructions in the cache line, are not "transformed" in the above passage.

**Response:** In Breternitz the pre-compression activity transforms the data; the schema is the coded instruction that tells the system to act on the data, without instruction code pre-compression activity nor compression of data would not take place in Breternitz. Breternitz teaches at "step 110, the uncompressed *code is divided* into uncompressed cache line blocks". Dividing the code [30, figure 2] represents partitioning and reordering the data, this is a part of the pre-compression activity. Breternitz states at "step 130, efficiency is realized by compressing the individual cache line blocks to create compressed code 40" col. 5 lines 22-23.

**(Argument 4)** Regarding claims 3, 4, 9, and 10 the Breternitz patent does not disclose "reordering the data into column major order".

**Response:** Breternitz's system allows for reordering the data into column major order, see column 2 lines 40-52 example; also note figure 1 steps 110 through 140.

**(Argument 5)** Claim 6 is an independent claim directed to a specific technique for generating a schema that could be used to improve the compression of a stream of data. Claim 6 requires that a sample of data be separated into two portions, that a portion of high entropy are partitioned into columns, and that different combinations of



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columns be searched for a combination that minimizes the compressed size of the sample.

**Response:** Applicant's arguments regarding claim 6, overcomes the prior art rejection.

The prior art of fails to teach the specific limitations of claim 6. The examiner finds claim 6 allowable over the prior art of record; however the examiner objects to minor antecedent basis in claim 6 line 6, "the compressed size of the sample" should read "a compressed size of the sample".

For the above reasons, it is believed that the rejections should be sustained.



**GRETA ROBINSON**  
**PRIMARY EXAMINER**

Respectfully submitted,

Greta L. Robinson  
Primary Examiner  
September 5, 2003

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